

# Armed Forces College of Medicine AFCM



# Topography of Lower Limb Dr. Shereen Adel

# **INTENDED LEARNING OBJECTIVES (ILO)**



By the end of this lecture the student will be able to:

- 1. Identify bones of thigh, leg & foot.
- 2. Identify different groups of muscles of thigh, gluteal region, leg & foot.
- 3. Enumerate nerves & vessels in the lower limb.

# **Key points**



1. Bones & groups of muscles of lower limb

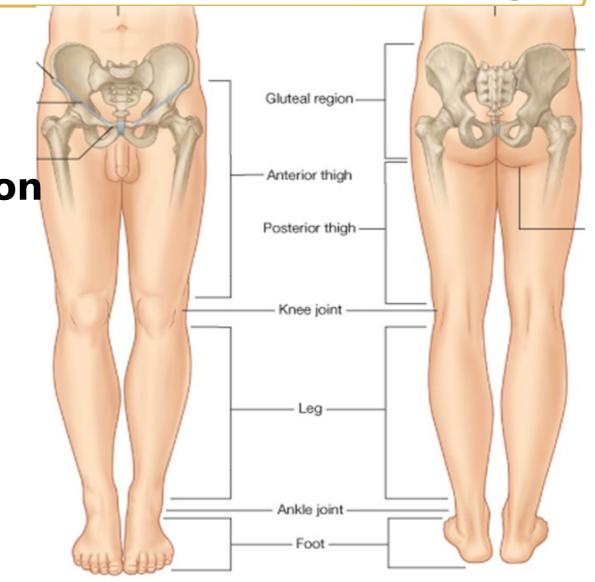
2. Nerves of lower limb

3. Vessels of lower limb.

# **Regions of Lower Limb**

wer limb is formed of thigh, & foot.

uteal region is a posterior region re the back of the thigh.

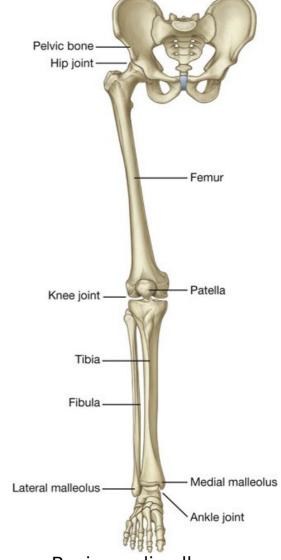


# **Bones & Joints of Lower Limb**



### **Bones**

- 1- Hip bone
- 2- Femur (thigh)
- 3- Tibia & fibula (
- 4- Bones of the fo
- Tarsal bones
   7 bones
- Metatarsals
- Phalanges



Frank H.Netter. 4th edition

#### **Bones of Lower Limb**

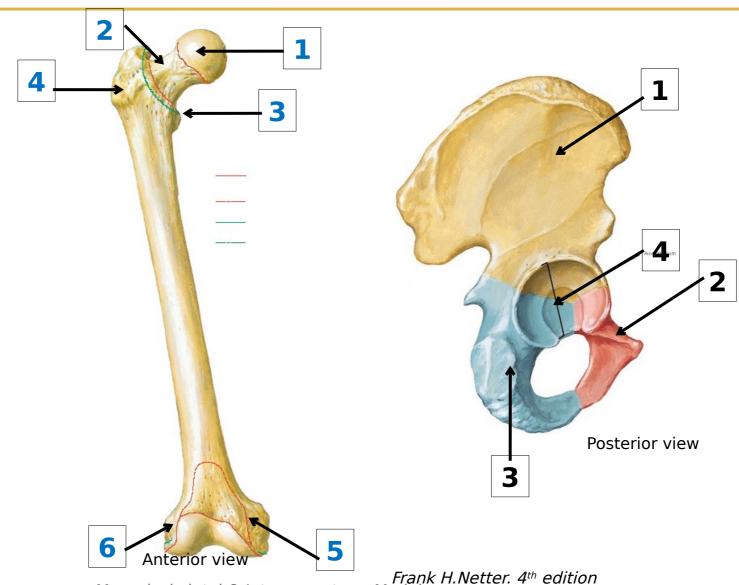


#### emur:

- Head
- Neck
- lesser trochanter
- Greater trochanter
- medial condyle
- lateral condyle

#### **Hip bone:**

- L- ileum
- 2- pubis
- 3- ischium
- 1- acetabulum



#### **Bones of Lower Limb**

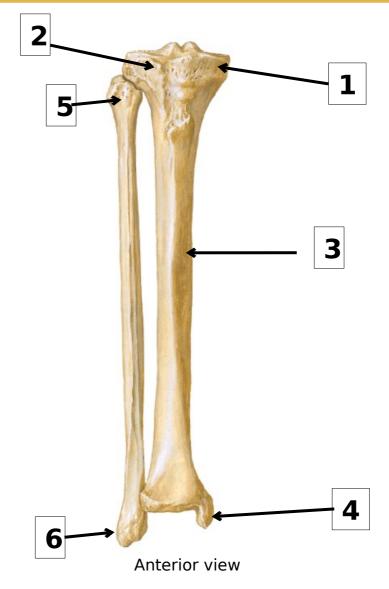


#### **Tibia**

- 1- Medial condyle
- 2- Lateral condyle
- 3- Shaft
- 4- Medial malleolus

#### ibula:

- Head of fibula
- Lateral malleolus

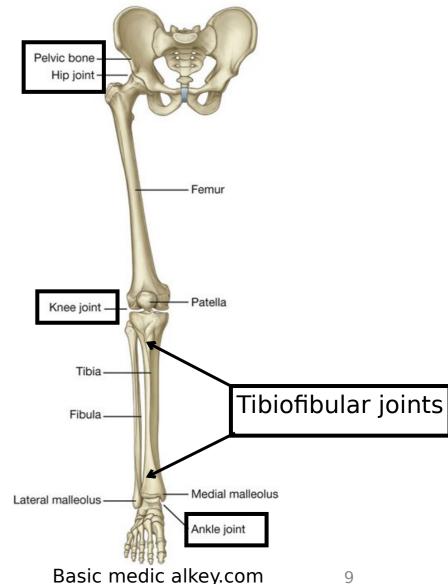


# **Bones & Joints of Lower Limb**



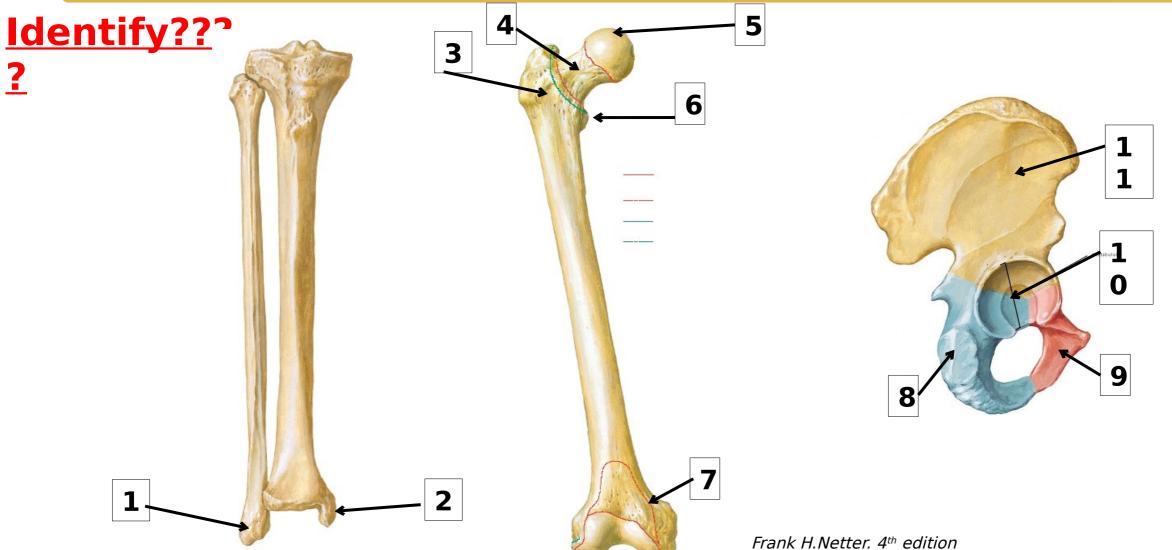
# **Joints:**

- 1- Hip joint
- 2- Knee joint
- 3- Superior & inferior tibiofibular joints
- 4- Ankle joint
- 5- Joints of the foot



# Lecture Quiz 1 (bones)

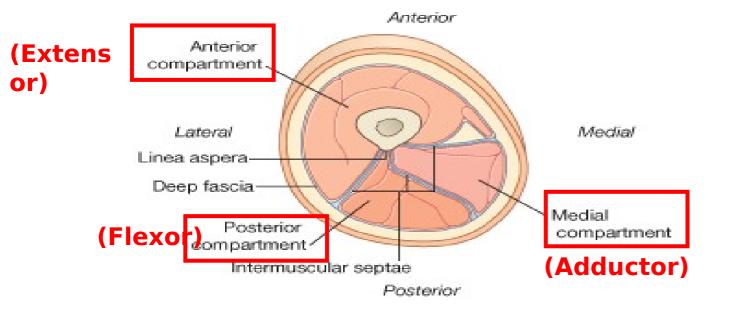


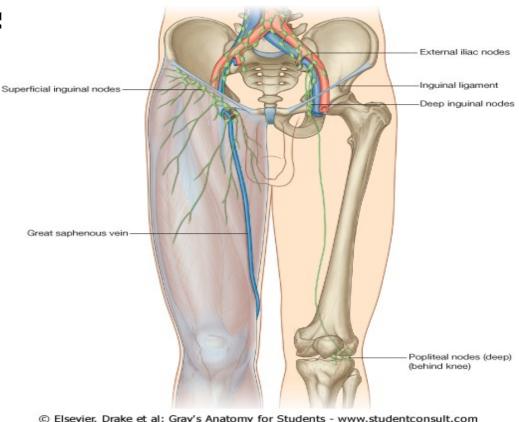


# Fascia of the thigh



ep fascia of the thigh (Fascia lata): divide: thigh into three compartments intermuscular septa.





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#### Muscles of the Lower Limb



Femoral triang

# 1. Muscles of the thigh

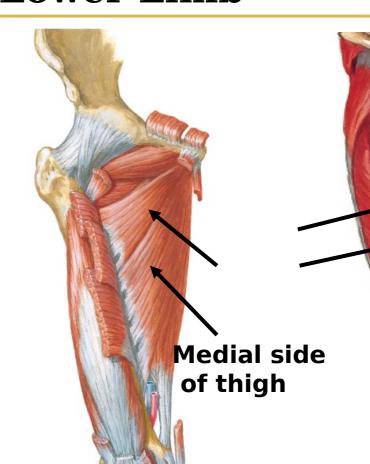
A) Anterior compartment Gluteal (extensors) (femoral tria muscles

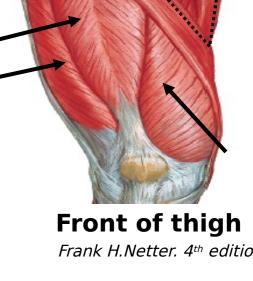
B) Medial compartment of thigh (adductors) (adductor canal)

Back of thigh C) Posterior compartme of thigh (flexor)

**Popliteal Fossa** 

**2- Gluteal muscles** 





**Popliteal Fossa** 

Frank H. Netter. 4th edition back of leg

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#### **Muscles of the Lower Limb**



# 2. Muscles of the leg

Deep fascia of the leg divides it into 3

tments:



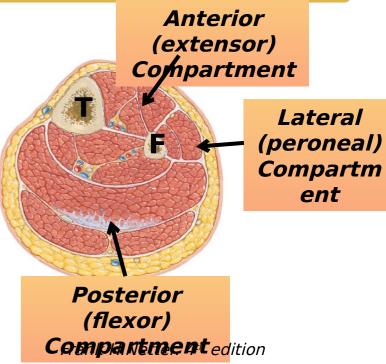
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Lateral (peroneal)
Compartment



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Posterior (flexor)



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Anterior (extensor)

ar Program

#### **Muscles of the Lower Limb**



# 3. Muscles of the foot (Dorsum & Sole )





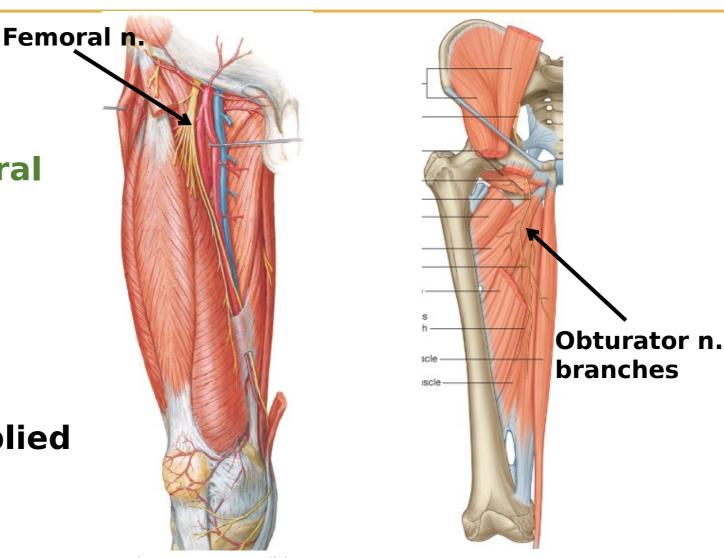
#### **Nerves of the Lower Limb**



**Thigh** 

A) Anterior compartment is supplied by Femoral nerve (lumbar Plexus)

B) Medial compartment is supplied by Obturator nerve (lumbar Plexus)



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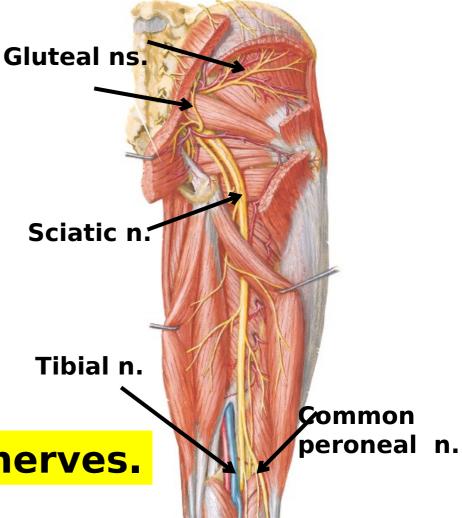
#### **Nerves of the Lower Limb**



C) Posterior compartment is supplied by Sciatic nerve (sacral plexus) it is the thickest nerve in the body.

# **Leg**

Is supplied by <u>tibial nerve</u> & <u>common</u> <u>peroneal nerve</u> the terminal branches of sciatic nerve.



uteal muscles are supplied by gluteal nerves.

# Lecture Quiz 2 (Nerves)



- Anterior compartment of thigh is supplied by ...... nerve, while medial compartment is supplied by ...... nerve.
- Sciatic nerve supplies.......compartment, gives two terminal branches.......&.....to supply the leg.

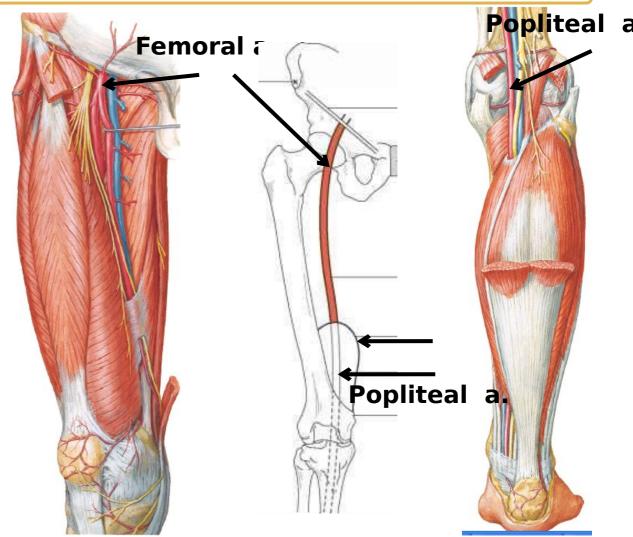


<u>emoral artery</u>

**Begins** as direct continuation of the external iliac artery.

**Ends** as popliteal artery in the popliteal fossa.

Popliteal artery ends in the popliteal fossa by Dividing into anterior & posterior tibial arteries to supply the leg & foot.



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nches of the femoral artery:

erficial branches

<u>p branches:</u>

ofunda Femoris

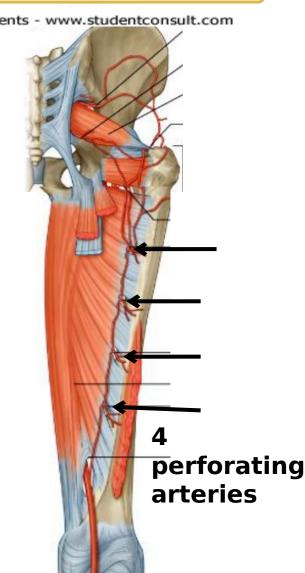
edial & lateral circumflex femoral arteries

our perforating arteries.

escending genicular (knee joint)

lateral circumflex femoral

Medial circumflex femoral



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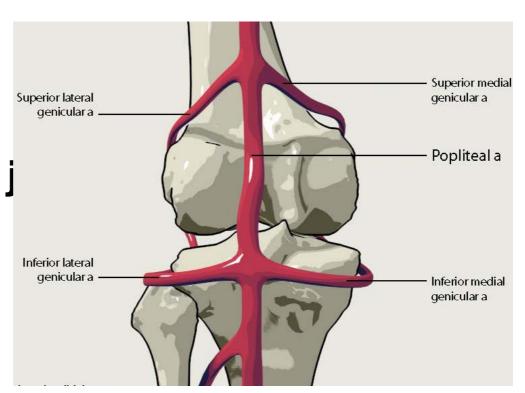
# Popliteal artery

#### **Branches:**

- 1. Muscular
- 2. Cutaneous
- 3. Articular

(Genicular)

branches (5) Knee j



://www.google.com/search? q=femoral+popliteal+artery&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiQ6faliqzhA hULJhoKHa5VCjEQ AUIDigB&biw=1366&bih=657#imgrc=8-9T oqVQl9p2M:

Musculoskeletal & Integumentary Module

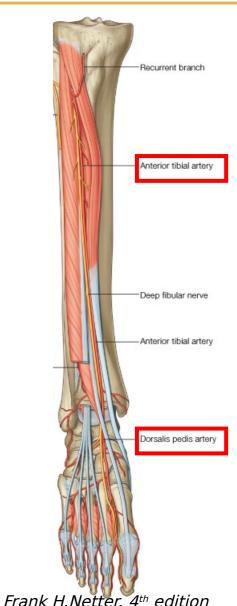


# <u>Interior tibial artery</u>

• Origin: One of the 2 terminal br. of popliteal artery

**Termination:** Continues **as Dorsalis pedis** in front of ankle.

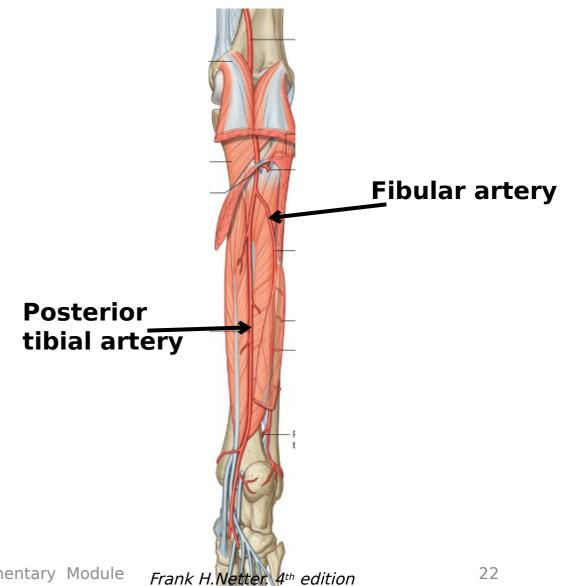
- Branches:
- 1. recurrent a. (knee)
- 2. Muscular
- 3. Malleolar a. (ankle)





# <u>osterior tibial artery</u>

- **Origin:** The larger of the 2 terminal br. Of popliteal artery
- **Termination:** by dividing into medial & lateral plantar arteries
- **Branches:**
- 1. Fibular
- 2. Circumflex fibular (Knee)
- 3. Medial Malleolar & calnanean (ankle)





# Obturator artery (internal iliac artery) Branches:

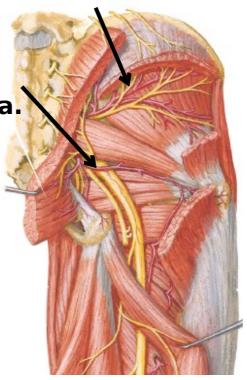
 Muscular branches to adductor muscles

 Acetabular branch to Inferior head of femur

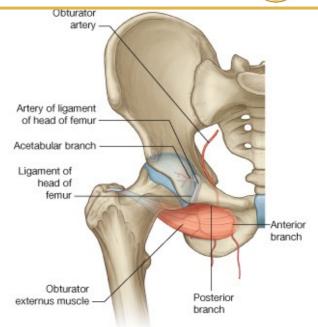
Superior & inferior gluteal arteries (internal iliac artery)

#### **Branches:**

 Muscular branches to gluteal muscles Superior Gluteal a.



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# Lecture Quiz 3 (Vessels)



ral artery ends as	which ends	by dividing in
&	to supply the	leg & foot.

erior tibial artery continue as......tie.....between the t

erior tibial artery ends by two.....arteries.

#### **Veins of the Lower Limb**



Veins of the upper limb include:

**Deep Veins:** 

Usually accompany the arteries & their branches.

**Superficial Veins:** 

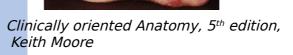
Great & small saphenous veins & doi

venous

Perforating veins: connecting superficial & deep veins, allowing blood to flow in one direction only from superficial to deep veins.

In case of incompetent perforating veins blood pass from deep to superficial veins (Varicose Veins)

Great saphenous vein



Dorsal venous arch

small saphenous vein

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#### **Veins of the Lower Limb**



### **Great Saphenous vein:**

**Begin medial** end of dorsal venous arch

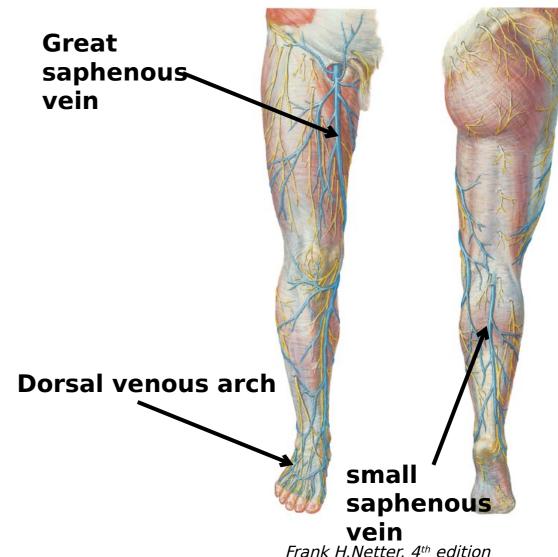
**Ends** in the **femoral vein** 

# **Small Saphenous vein:**

**Begin** lateral end of dorsal venous

arch

**Ends** in the **popliteal vein** 



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# Lecture Quiz 3 (Vessels)



• Great saphenous vein ends in......while small

Saphenous vein ends in.....

#### **SUGGESTED TEXTBOOKS**



1. Frank H. Netter Atlas of Human Anatomy, 4th edition.

# **Summary**



- Names of bones of thigh, leg & foot with important general features.
- Different regions of lower limb.
- Different groups of muscles of thigh, gluteal region &leg.
- Main vessels & nerves in the lower limb.



# Thank You